TECHNOLOGY NEEDS/OPPORTUNITIES STATEMENT

CONTAMINANT MAPPING OF K BASINS

Identification No.: RL-SNF01
Date: November 2000

Program: Spent Nuclear Fuel (SNF)
OPS Office/Site: Richland Operations Office/Hanford Site
PBS No.: RL-RS03
Waste Stream: ERW-02 MLLW Debris to ERDF (Radioactively contaminated surfaces with loose or dispersible contamination).
TSD Title: N/A
Operable Unit (if applicable): 100-KR-2
Waste Management Unit (if applicable): N/A
Facility: K Basins

Priority Rating:

This entry addresses the "Accelerated Cleanup: Paths to Closure (ACPC)" Priority:

____ 1. Critical to the success of the ACPC
_X_ 2. Provides substantial benefit to ACPC projects (e.g., moderate to high lifecycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays)
____ 3. Provides opportunities for significant, but lower cost savings or risk reduction, and may reduce uncertainty in ACPC project success.

Need Title: Contaminant Mapping of K Basins.

Need/Opportunity Category: *Technology Need* -- There is no existing or currently identified technology capable of solving the site's problem (i.e., technology gap exists, no baseline approach has been identified).

Need Description: A method to map the location and activity levels of radioactive contaminants on underwater vertical and horizontal surfaces is needed.

Schedule Requirements:

Earliest Date Required: (10/2001)
Latest Date Required: (06/2002)

The removal of fuel from the K Basins is scheduled for completion in 2004. Mapping of wall and floor contaminants is needed to support development of deactivation plans.

Deactivation plans must be in place prior to initiation of decontamination activities. Completion of the K Basin Deactivation program is currently scheduled for July 2007.

Problem Description: Residual surface contamination is present on KE Basin surfaces and may also be present on KW Basin surfaces (basin walls and floors) and in the area surrounding the K Basin fuel storage pools. Residual contamination presents a worker exposure concern. The location and activity level of contaminants needs to be identified to enable proper selection of a decontamination technology. Identification of the decontamination technology is necessary before project baselines can be developed.

Potential Life-Cycle Cost Savings of Need (in $000s) and Cost Savings Explanation: Potential life cycle savings for contaminant mapping of the K basins is estimated to be $400,000. This estimate is based on current project total cost for decontamination of the both KE and KW Basins.

Benefit to the Project Baseline of Filling Need: Identification of a remote mapping method in a submerged location will speed up deactivation activity with the K Basin pools. It will also result in a cost-effective approach for decontamination.

Relevant PBS Milestone: ***S00-01-909 - Complete Spent Nuclear Fuel Project***

Functional Performance Requirements: The mapping technology must be able to locate and identify the activity level of alpha, beta, and gamma contamination on both vertical and horizontal surfaces. The mapping must be performed remotely and underwater. The surfaces are not uniform with sections that vary in width from 1 in. to 125 ft.

Work Breakdown Structure (WBS) No.:	***TIP No.:***
1.3.1	S10-99-950

Justification For Need:

Technical: The location and activity level of contaminants needs to be identified to enable proper selection of a cost-effective decontamination technology. Identification of the decontamination technology is necessary before project baselines can be developed. Residual radioactive contamination presents safety and exposure concerns.

Regulatory: Tri-Party Agreement milestone M-34-00A requires complete removal of spent nuclear fuel, sludge, debris, and water by July 31, 2007.

Environmental Safety & Health: Residual radioactive contamination presents safety and exposure concerns.

Cultural/Stakeholder Concerns: Employee and public exposure to radioactive materials is a concern of Hanford Site stakeholders.

Other: None identified.

Current Baseline Technology: N/A.

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